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(54) Title: BIO-SYNTHETIC MATRIX AND USES THEREOF

(57) **Abstract:** A bio-synthetic matrix comprising a hydrogel which is formed by cross-linking a synthetic polymer and a bio-polymer is provided. The matrix is robust, biocompatible and non-cytotoxic and is capable of supporting cell in-growth *in vivo*. The matrix can be tailored to further comprise one or more bioactive agents. The matrix may also comprise cells encapsulated and dispersed therein, which are capable of proliferating upon deposition of the matrix *in vivo*. Methods of preparing the bio-synthetic matrix and the use of the matrix *in vivo* for tissue engineering or drug delivery applications are also provided.

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